

What is claimed is:

1. A motion vector and macroblock type determining method comprising:

5 receiving a high frame-rate video stream having N frames;  
skipping a frame N-1;  
allocating a motion vector to a macroblock of frame N according to a macroblock type of the skipped frame N-1;  
allocating a macroblock type to a macroblock type of frame N according to  
10 a macroblock type of the skipped frame N-1; and  
outputting a low frame-rate video stream.

2. The method of claim 1, wherein the macroblock type of the frame N is divided into an inter type and a skipped type.

15 3. The method of claim 2, wherein the motion vector of the macroblock of the frame N is determined according to a macroblock type of the skipped frame N-1 when the macroblock of the frame N is an inter type.

20 4. The method of claim 2, wherein the macroblock type of the frame N is determined according to a macroblock type of the frame N-1 located at approximately similar position with the macroblock of the frame N when the macroblock of the frame N is a skipped type.

5. The method of claim 4, further comprising:

determining a new motion vector of the macroblock of the frame N when the new macroblock is an inter type.

5 6. The method of claim 5, wherein the new motion vector of the macroblock of the frame N is determined so as to be same with a motion vector of the macroblock of the frame N-1 located at approximately a similar position with the macroblock of the frame N.

10 7. A motion vector and macroblock type determining method comprising:

determining whether a macroblock of a frame N transmitted after a skipped frame N-1 is an inter type or a skipped type;

allocating a new motion vector for the frame N according to a macroblock 15 type of the skipped frame N-1 when a macroblock of the frame N is an intra type; and

determining a new macroblock type for the frame N according to a macroblock type of the frame N-1 located at approximately a similar position with the macroblock of the frame N when the macroblock of the frame N is a skipped 20 type.

8. The method of claim 7, further comprising:

determining a macroblock type of the skipped frame N-1 when the macroblock of the frame N is an intra type;

25 allocating an infinite motion vector to the macroblock of the frame N when

the macroblock of the skipped frame N-1 is an intra type;

allocating the same motion vector of the macroblock of the frame N when the macroblock of the skipped frame N-1 is a skipped type; and

allocating sum total of a motion vector allocated to macroblock of the frame N and a motion vector allocated to macroblock of the frame N-1 as a new motion vector of the macroblock of the frame N when the macroblock of the skipped frame N-1 is an inter type.

9. The method of claim 7, further comprising:

10 determining a macroblock type for the frame N-1 located at approximately a similar position with the macroblock of the frame N when the macroblock of the frame N is a skipped type;

determining the macroblock of the frame N as an intra type when the macroblock of the frame N-1 is an intra type;

15 determining the macroblock of the frame N as a skipped type when the macroblock of the frame N-1 is a skipped type; and

determining the macroblock of the frame N as an inter type when the macroblock of the frame N-1 is an inter type.

20 10. The method of claim 9, further comprising:

allocating a motion vector about the macroblock of the frame N when the macroblock of the frame N is an inter type.

11. The method of claim 10, wherein the motion vector is allocated

25 so as to be similar to the motion vector of the macroblock of the frame N-1 located

at approximately a same position with the macroblock of the frame N.

12. A motion vector and macroblock type determining method comprising:

5 examining a macroblock of a frame N transmitted after a skipped frame N-

1 is an inter type;

determining a macroblock type of a frame N-1; and

allocating a new motion vector for a macroblock of the frame N, according to the macroblock type of the frame N-1.

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13. The method of claim 12, wherein the macroblock type of the frame N-1 is divided into an intra type, a skipped type and an inter type.

14. The method of claim 12, wherein the new motion vector is determined based on an equation  $MV'_N = MV_N + MV_{N-1}$ , wherein  $MV'_N$  is a motion vector allocated to a macroblock of the frame N,  $MV_N$  is a motion vector of a macroblock of the frame N, and  $MV_{N-1}$  is a motion vector of a macroblock of the frame N-1.

20 15. The method of claim 14, wherein  $MV_{N-1}$  has an approximately infinite value when the macroblock of the frame N-1 is an intra type.

16. The method of claim 14, wherein  $MV_{N-1}$  has an approximately 0 value when the macroblock of the frame N-1 is a skipped type.

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17. The method of claim 12, wherein the new motion vector allocating step comprises:

allocating an infinite motion vector to a macroblock of the frame N when the macroblock of the skipped frame N-1 is an intra type;

5 allocating a motion vector of the macroblock of the frame N when the macroblock of the skipped frame N-1 is a skipped type; and

allocating approximately sum of a motion vector allocated to the macroblock of the frame N and a motion vector allocated to the macroblock of the frame N-1 as a new motion vector for the macroblock of the frame N when the 10 macroblock of the skipped frame N-1 is an inter type.

18. A motion vector and macroblock type determining method comprising:

examining a macroblock of a frame N transmitted after a skipped frame N-

15 1;

examining a macroblock type of a frame N-1 located at approximately a similar position with the macroblock of the frame N; and

determining if the macroblock type of the frame N is same as the macroblock type of the frame N-1.

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19. The method of claim 18, wherein the macroblock of the frame N is determined as an intra type, when the macroblock of the frame N-1 is an intra type.

20. The method of claim 18, wherein the macroblock of the frame N is 25 determined as a skipped type, when the macroblock of the frame N-1 is a skipped

type.

21. The method of claim 18, further comprising:

determining the macroblock of the frame N as an inter type, when the

5 macroblock of the frame N-1 is an inter type; and

allocating a new motion vector of the macroblock of the frame N.

22. The method of claim 21, wherein a motion vector of the

macroblock of the frame N-1 located at approximately same position with the

10 macroblock of the frame N is allocated as a new motion vector of the macroblock

of the frame N.